# Legionella Pneumophila

1. Signs / symptoms
   1. Case: 3 day history of high fever / dry cough. Progressed to include headaches, muscle aches, confusion.
   2. Inspiratory rales.
   3. Cough- productive of scanty, clear sputum
   4. Chest X ray: bilateral lower lobe patchy (interstitial) infiltrates
2. source of organism
   1. Environment: showers, air conditioners, cooling towers, humidifiers, whirlpools, spas: freshwater amebae are a natural reservoir
   2. Aerosolizing equipment: nebulizers, humidifiers, water faucets
   3. Aspiration: from contaminated water or via nasogastric tubes
3. manner of exposure and route of infection / transmission to others
   1. through airborne routes in aerosol
   2. not transmitted person to person
4. pathology and the manner by which pathological picture is induced
   1. usually cleared by mucociliary action in URT
   2. in LRT- organisms penetrate the mucus layer in lower respiratory epithelium and bind via pili
   3. binds C3- favoring opsonization
   4. are strictly intracellular 🡪 phagocytosed but prevent lysosome fusion
   5. may survive in phagosomes- release toxins that destroy host cells
   6. Cytokines and other reactive mediators from PMNs and T cells that inflict tissue damage
   7. Complement and cellular elements of the host response lead to patchy, diffuse infiltrates seen on chest X ray
5. what allows identification and placement into a particular biological subset
   1. motile, flagellated, pleomorphic rods
   2. faint staining with Gram stain- carries Gram Negative wall
6. anyone have enhanced resistance or susceptibility (vaccinated, geography, types of work, immunodeficiency)
   1. risk groups: over 50 yrs old, smokers, alcoholics
   2. patients with COPD, immunocompromised patients with organ transplants and patients on corticosteroids
7. what allows discrimination from other organisms in the differential diagnosis
   1. gram stain rules out strep. Pneumoniae
   2. direct fluorescence antibody rules out atypical pathogens
   3. specific history of exposure (environmental)
   4. detect Ag in urine
   5. culture sputum
8. prevention, treatment, vaccines
   1. Treatment: macrolide, new quinolone, doxycycline
   2. Prevention: maintain a slime free environment in pools, spas, and other at risk environments. Clean cooling towers. Use biocides. Never use tap water for respiratory therapy devices.
   3. Recovery is slow (takes weeks) fatality in 15%
9. Compare Pontiac Fever with Legionnaire’s disease
   1. Legionnaire’s
      1. Onset 2-10 days after exposure
      2. Presents as an acute, severe fibrinopurulent pneumonia with alveolitis and bronchiolitis
      3. Infects lungs and may infect lymph nodes, brain, kidney, liver, spleen, bone marrow, myocardium.
      4. May see hyponatremia and hypophosphatemia
   2. Pontiac Fever
      1. Acute onset, flu-like, nonpneumonic illness
      2. Onset is a few hours – 2 days after exposure to L. Pneumophila
      3. Chest X rays do not show pneumonic infiltrates
      4. Often very high attack rate in exposed groups
      5. Recovery after 2-5 days, less than 1% fatal